## REMARKS

In the Office Action, claims 1-24 were rejected. In view of the following remarks, the Applicants respectfully request reconsideration and allowance of all pending claims.

### Rejections under 35 U.S.C. § 102

Claims 1-4, 6, 10-15 and 21-24 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,929,749 (hereinafter "Slonim"). Claims 1, 10, 11, 12, 21, 22, 23 and 24 are independent.

### Independent claim 1 and claims depending therefrom.

Independent claim 1 recites, *inter alia*, a method of facilitating communication in an electrical power network having a complex impedance, comprising modifying the complex impedance of an electrical power network and determining whether the modifying affected a quality of the communication. Independent claim 1 thus recites determining a quality of a communication based upon a modification of a complex impedance of an electrical power network.

***Slonim fails to teach a method of determining quality of communication in an electrical power network.***

The Examiner suggested that Slonim discloses the claimed method. In support of this position, the Examiner cited passages that read as follows:

> According to still further features in the described preferred embodiments, the system can be used on a local power line which has a relatively low impedance load, and it can also be used on a local power line which has a relatively high impedance load.
>
> In addition, according to the present invention, sensors may be conveniently placed as needed to measure various parameters of interest and communicate them through the local power line. The system controller can likewise be

located wherever convenient, and may also include one or more sensors.

In order to maintain a complete circuit for the communication and control signals when the local power line is disconnected from the power main, the present invention provides high-pass filters which constitute a transmission path for the high-frequency communication and control signals while appearing as an open circuit to the low-frequency power when the local power line is connected to the power main. The present invention also makes use of low-pass filters to serve as a transmission path for the low frequency power when the local power line is connected to the power main while appearing as an open circuit to the high-frequency communication and control signals. The present application uses the term "frequency-dependent element" to denote an electrical device whose impedance varies according to the frequency of the voltage or current excitation. Examples of frequency-dependent elements include, but are not limited to, capacitors, inductors, transformers, combinations of capacitors and inductors, crystals, and other resonant devices.

Slonim, col. 3, lines 61 – col. 4 line 23.

An example of the utility of the present invention is in the control of the temperature of the water in a domestic hot water heater. In this case, since an electrical heating element represents a low-impedance load, the system arrangement is an shown in FIG. 1, to which reference is briefly made. Information source 22 contains temperature sensors and monitors and reports on the temperature of the water. System controller 14 *periodically interrogates information source 22 to compare the water temperature to certain preset limits*. If the water temperature is below preset minimum, system controller 14 periodically closes automatic switches 24 so that power is applied to the heater, which is load 20. If the water temperature is at or above the maximum, however, system controller 14 keeps the power off by opening automatic switches 24.

*Id.,* col. 4, lines 46-60 (emphasis added).

These passages from Slonim indicate that a system controller periodically interrogates the information source to compare water temperature. Slonim further teaches acting upon the data from the information source to turn off power. Slonim however fails to identify "quality of communication" and act upon such determinations.

A further passage relied upon by the Examiner reads:

> The present invention is of a system for communication and control which can be used to over local power lines. Specifically, the present invention can be used to *monitor various conditions and turn on and off various loads for control purposes*. For example, it can monitor the temperature of water in a water heater and can turn on and off the water heater to control the temperature of the water. A prominent benefit of a system according to the present invention is *its immunity to the noise and signal degradation which arise on account of the power main*.
>
> *Id.,* col. 5, lines 47-56 (emphasis added).

Slonim discloses monitoring various conditions in the system, but communication quality is *not* one of them. A transmitter and a receiver are used to communicate over the power line, wherein each has a controller that monitors and controls the transmission. However, Slonim contains no disclosure whatsoever relating to determining quality of communication or changing the complex impedance based upon such quality determinations. Immunity to noise and signal degradation will not account for quality of communication. Indeed, such purported immunity would imply that there is *no need* to monitor communication quality or to adapt system impedance based upon it.

Accordingly, claim 1 is clearly patentable over Slonim.

**Independent Claims 10 and 11.**

Similarly to claim 1, independent claim 10 recites, *inter alia*, a method of facilitating communication in an electrical power network having a complex impedance, comprising determining a quality of communication in the electrical power network, and modifying the complex impedance of the electrical power network if the quality is below an acceptable threshold. Independent claim 10 thus recites *determining a quality of communication* with respect to an acceptable threshold.

Independent claim 11 similarly recites, *inter alia*, a method of facilitating communication in an electrical power network having a complex impedance, comprising transmitting information via the electrical power network determining a quality of communication of the transmitted information, modifying the complex impedance of the electrical power network based upon the determination, and retransmitting the information via the electrical power network. Independent claim 11 thus recites retransmitting the information based on *determining a quality of communication*.

***Slonim fails to teach a method where in a quality of communication is determined based on an acceptable threshold.***

The Examiner suggested that Slonim discloses the subject matter of both claims 10 and 11. As discussed above, Slonim does not teach *determining the quality of communication*, and *a fortiori*, does not teach analysis based upon an acceptable threshold. Furthermore, Slonim does not teach retransmitting information based upon a determination of *quality of communication*.

**Independent claim 12 and claims depending therefrom.**

Independent claim 12 recites, *inter alia*, an apparatus for facilitating communication in an electrical power network having a complex impedance, comprising a circuit for modifying the complex impedance of the electrical power network and a processor for determining whether the modifying affected a quality of the communication. Independent

claim 12 thus recites an apparatus for modifying the complex impedance and *determining quality of communication* based on the modification.

***Slonim fails to teach an apparatus that modifies the complex impedance of the electrical power network based on quality of communication and independent of load conditions.***

The Examiner suggested that Slonim discloses all elements of claim12.

As discussed above, Slonim simply does not analyze quality of communications or adjust or modify a complex impedance based upon such a quality. *A fortiori*, then, Slonim cannot be fairly read to further teach doing so independent of load communications.

**Independent claim 21.**

Independent claim 21 recites, *inter alia*, a processor for facilitating communication in an electrical power network having a complex impedance, comprising a module for determining a quality of communication in the electrical power network, and a module for controlling a circuit to modify the complex impedance of the electrical power network if the quality is below an acceptable threshold. Independent claim 21 thus recites a processor to facilitate communication by *determining quality of communication* and controlling the circuit to modify complex impedance based on an acceptable threshold.

***Slonim does not teach about any processor for a determining the quality with respect to a threshold and act upon the determination for modifying complex impedance.***

For the same reasons discussed above, Slonim cannot anticipate claim 21. That is, the reference is completely devoid of any teaching of determining a quality of communication and acting upon that determination to modify complex impedance.

**Independent claim 22.**

Independent claim 22 recites, *inter alia*, a processor for facilitating communication in an electrical power network having a complex impedance, comprising a module for advising a transmitter to transmit information via the electrical power network, a module for determining quality of communication of the transmitted information, a module for controlling a circuit to modify the complex impedance of the electrical power network based upon the determination, and a module for advising the transmitter to retransmit the information.

As discussed above, Slonim fails to teach determining a quality of communication or modifying a complex impedance based upon such determination. The passages cited by the Examiner in rejecting claim 22 have *nothing whatsoever* to do with communication quality. Moreover, *nothing* in these passages or apparently elsewhere in the reference relates to advising a trasmitter to retransmit information, as recited in claim 22.

**Independent Claims 23 and 24.**

Independent claim 23 recites, *inter alia*, a storage medium that contains instructions for controlling a processor for facilitating communication in an electrical power network having a complex impedance, comprising instructions for controlling *the processor to determine a quality of communication* in the electrical power network, and instructions for controlling the *processor to control a circuit to modify the complex impedance* of the electrical power network if the *quality is below an acceptable threshold.*

Independent claim 24 similarly recites, *inter alia*, a storage medium that contains instructions for controlling a processor for facilitating communication in an electrical power network having a complex impedance, comprising instructions for controlling the processor to advise a transmitter to transmit information via the electrical power network,

*instructions for determining quality of communication* of the transmitted information, instructions for controlling the processor to control a circuit to modify of the electrical power network the complex impedance based upon the determination, and *instructions for controlling the processor to advise the transmitter to retransmit* the information.

Claims 23 and 24 are clearly distinguished from Slonim for the same reasons summarized above with respect to claims 21 and 22, respectively.

**Rejections Under 35 U.S.C. § 103**

Claims 5, 7-9, 16 and 18-20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Slonim. All of these claims are believed to be clearly allowable by virtue of their dependency from allowable independent claims. For at least these reasons, Applicants respectfully request withdrawal of the rejections under 35 U.S.C. § 103.

**Examiner's response to arguments**

In the "Response to Arguments" section on page 2 of the current Final Office Action, the Examiner responded to Applicants' argument that Slonim discloses "monitoring various conditions" in the system, and turning on and off various loads for control purposes to ensure communication. The Examiner further mentioned that "monitoring of the communication can read on determining the quality of the communication".

Applicants respectfully reiterate that the Examiner is apparently equating *monitoring various conditions*, and turning on and off loads for control purposes with *monitoring quality of communication*, as in the case with the present application. Slonim, however does not mention any "quality of communication" and the Examiner did not identify any such "quality". Indeed, it is clear that Slonim does not detect, evaluate or act on the basis of a "quality" of communication, particularly insomuch as it might be affected by network impedance.

**Conclusion**

In view of the remarks and amendments set forth above, Applicants respectfully request allowance of the pending claims. If the Examiner believes that a telephonic interview will help speed this application toward issuance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,

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